

**Gender, information technology and developing countries:
an analytic study**

Executive Summary

for the Office of Women in Development
Bureau for Global Programs, Field Support and Research
United States Agency for International Development

Task Order 27-2432-21

By Nancy Hafkin and Nancy Taggart
Academy for Educational Development (AED)

Introduction

Information technology (IT) has become a potent force in transforming social, economic and political life globally. Without their incorporation into the information age, there is little chance for countries or regions to develop. More and more concern is being shown about the impact of those left on the other side of the digital divide- the division between the Information “haves” and “have nots.” Most women within developing countries are in the deepest part of the divide, further removed from the information age than the men whose poverty they share. If access to and use of these technologies is directly linked to social and economic development, then it is imperative to ensure that women in developing countries understand the significance of these technologies and use them. If not, they will become further marginalized from the mainstream of their countries and of the world. It is essential that gender issues be considered early in the process of the introduction of information technology in developing countries so that gender concerns can be incorporated from the beginning and not as a corrective afterwards. Many people dismiss the concern for gender and IT in developing countries on the basis that development should deal with basic needs first. However, it is not a choice between one and the other. IT can be an important tool in meeting women’s basic needs and can provide the access to resources to lead women out of poverty.

Current situation of gender and information technology in developing countries

Getting reliable statistics on women’s Internet use in developing countries is very difficult. The standard indicators are not disaggregated by sex, and the available data are not very reliable or comparable. However, it is clear that the numbers are small and the distribution limited. Most women Internet users in almost all developing countries are not representative of women in the country as a whole, but rather are part of a small, urban educated elite. In many developing countries, less than one percent of the population- male or female- has Internet access. By regions, women are 22 percent of all Internet users in Asia, 38 percent of those in Latin America and six percent of Middle Eastern users. No regional figures by sex are available for Africa.

Uses

Most women in developing countries who use information technology use it at work. Except in upper-income enclaves, home access to a computer and the Internet is not a phenomenon. Users at work generally divide up between those who use it as a tool of production (routine office work, data entry, manufacturing, computer industry jobs, programming and related work) and those who use it as a tool of communication (creating and exchanging information). As a tool of communication, the most prevalent application is networking for political advocacy on behalf of women. This came about because the non-governmental organizations that promoted electronic networking and that worked in these areas were the early adopters and continuing users of the technology in developing countries.

Developing country women have also used electronic communication for networking to promote their business interests. This area is far less developed than that of politically activist networking, but it represents an interesting area with possibilities for further development. E-mail is the major information technology application that women’s organizations and individual women in developing countries use. Time constraints as well as bandwidth limitations make Web use difficult for women.

Few women are producers of information technology, whether as Internet content providers, programmers, designers, inventors or fixers of computers. Women are also conspicuously absent from decision-making structures in information technology in developing countries.

Obstacles to women's access

A series of factors, including literacy and education, language, time, cost, geographical location of facilities, social and cultural norms and their own computer and information use skills constrain women's access to information technology.

Science and technology education is necessary for women to work in IT at the level of computer programmers, engineers, systems analysts and designers. Women's low enrolment in science impedes this globally. In developing countries, there is a great deal of variation in the percentages of women in natural sciences, computer science, and engineers. There are indications that young women in developing countries are not as affected as U.S. women by attitudes that computer science is not an attractive field to enter, with women comprising between 30 and 50 percent of students in computer science and other natural sciences in a number of developing countries. Africa remains the area of greatest concern, however, as African women have the lowest participation rates in the world in science and technology education at all levels.

Impact of information on women's work

Women tend to be concentrated in end-user, lower-skilled IT jobs related to word processing or data entry and make up small percentages of managerial, maintenance and design personnel in networks, operating systems or software. Although IT is a new field, gendered division of labor patterns are already emerging. However, women are making inroads into higher levels of the IT workforce in Latin America, East and Central Europe, much of western and South East Asia and in South Africa. Women comprise a significant percentage of software programmers in India and Brazil and at all levels of IT work in Malaysia.

Globalization has had a significant impact on women's work in information technology in developing countries. In the first phase of industrialization in Asia, primarily, and Latin America, secondarily, women found many information technology-related jobs in the assembly of electronics. In the last fifteen years with the move to more automated manufacturing requiring greater technical and cognitive skills than in the first phase of industrialization, the number of women employed in information technology manufacturing has dropped. The first generation of women workers is not being retrained for the new jobs.

While advances in information technology are making many women's manufacturing jobs redundant, it is creating other jobs largely taken by women in the service industries, in information processing, banking, insurance, printing and publishing where the skills requirements are higher than in the first phase of manufacturing jobs. Within the service sector, the major employment for women is in information processing jobs, particularly involving data entry. The West Indies and the Philippines were the early leaders in this area, followed by China, India, Singapore and Vietnam and extending most recently to Ghana and Uganda. Many of the new jobs are in call centers, in Geographical Information Systems and in software, all of which require higher skills levels than data entry. India and Malaysia have cornered the bulk of these jobs, but they are expanding to other areas as well, notably Togo and Tanzania. The salaries in this work are generally better than in other locally-available jobs with comparable skills levels. While there has been much discussion about teleworking in developing countries, most of the teleworking jobs in developing countries are actually outsourcing, located in commercial areas and not in homes. Women have also expressed preference for work near but not in their homes.

Economic empowerment through information technology

Uses of information technology to assist women in their current economic activities, including farming, trade and entrepreneurship are detailed. Women farmers could greatly increase productivity using information on improved technologies, agricultural inputs, weather and

markets. Traders and other entrepreneurs need to find marketing information and disseminate information about their businesses. Schoolgirls from the local communities who generally learn computer skills rapidly could be trained to serve as information intermediaries for the older women,

The new information economy offers many possibilities for new IT-enabled businesses that women could establish or in which they could work. Most numerous are the service jobs outsourced by major corporations in the U.S. and Europe. At the low end of the skills level and largest in number are jobs in data entry and data capture. Software programming, GIS and systems analysis jobs require much higher skills and education level, but women are moving into these in several developing countries. While the business to consumer e-commerce area has generated a great deal of excitement, it can be a difficult field to enter. Women's handicrafts can find niche markets, but marketing and management skills are needed, and supply and delivery problems must be addressed. Some successful developing country e-businesses have targeted their diaspora markets and taken advantage of local delivery. More profitable opportunities exist for women's small-scale women enterprises in business-to-business and business-to-government markets.

IT-enabled communications businesses offer much promise for women entrepreneurs, following the model of Grameen Phone in Bangladesh, *teleboutiques* in Senegal and Morocco and phone shops in Ghana. Given high demand, low capital and skills requirements, these businesses are within the reach of many women in developing countries if their country has the necessary enabling environment permitting the establishment of such businesses. Availability of credit, particularly in the form of micro-credit, is a necessity for women to enter such businesses. While micro-credit is increasingly popular, its availability falls far short of demand.

For employment in core sector information technology jobs, women in developing countries need to acquire the necessary training to move into more technical, better-paying, cognitively oriented jobs. While degrees in science and technology are the entry tickets to the higher ends of using and producing information technology, women can master many aspects of computer use and maintenance with much less training, with much of it available outside the formal education system.

Women's political empowerment through IT

IT is a forceful tool to improve governance and strengthen democracy. It is particularly powerful for giving a voice to women who so frequently in developing countries have been isolated, invisible and without a voice. Among the ways in which information technology can contribute to the political empowerment of women are as a tool for networking women for social and political advocacy, to strengthen women's participation in the political process, to improve the performance of elected women officials, to improve women's access to government and its services, for education and for the dissemination of indigenous knowledge. IT is particularly useful in increasing the transparency of accountability of government, an application from which women can particularly profit. A number of projects for women's political empowerment in developing countries are detailed.

Ensuring women's ability to take advantage of IT opportunities

Information technology can offer significant opportunities for virtually all girls and women in developing countries, including poor women living in rural areas. However, their ability to take advantage of these opportunities is contingent upon conducive policy, an enabling environment in their countries to extend communications infrastructure to where women live, and raising their

educational level. Out of enlightened self interest women in developing countries need to involve themselves in the area of information and communication technology policy and regulation.

Policy

The time is particularly a-propos to ensure the inclusion of gender concerns in national IT policy, as most developing countries are either in the process of or about to start elaborating these policies. The necessity of including social aspects in information and communication policy is underscored, and the gender implications of technical policy areas such as network architecture and deployment, pricing and tariff issues, are listed. However, in order to ensure women's ability to take advantage of opportunities presented by information technology, gender and development policy makers need to be sensitized to ICT issues. ICT and gender policy makers need to enter a dialogue so that ICT programs meet the needs of women and so that women-targeted programs contain ICT training and awareness. Cross contact is essential for the full realization of the opportunities that ICT can present for women in developing countries.

Infrastructure

Increasing women's access to information and communication technologies in developing countries involves increasing availability of communication in areas where women live since most women in developing countries live in presently underserved areas. Extension of infrastructure, particularly wireless and satellite communications, to rural areas and peri-urban areas is crucial to increasing women's access to information technology. Emphasis needs to be on common use facilities, such as telecenters, phone shops and other forms of public access at places convenient and accessible to women.

Education

The single most important factor in improving the ability of girls and women in developing countries to take full advantage of the opportunities offered by information technology is education, at all levels from literacy through scientific and technological education. Such improvement requires interventions at all levels of education. First, the concentrated efforts of the past ten years to ensure girls' and women's access to quality basic education should be continued and strengthened. Technologies could be integrated into girls' education and women's literacy programs to expose girls to new technologies at earlier stages and allow for much-needed integration of these two program areas.

Skills

Beyond access to basic education, girls and women must be equipped with skills to prepare them for a range of roles in information technology as users, creators, designers, and managers. Therefore, efforts should focus on increasing the number of girls and women studying IT-related subjects in formal schooling and seeking IT training outside of school, as well as related areas to help them fully utilize IT skills.

Access for poor women

Although to date most of the women accessing information technology have been from the educated elite, poor women in development countries can overcome the constraints that presently prevent their access and can use IT to meet their basic needs and exercise their fundamental rights. Technological and social solutions exist to the constraints that presently keep poor women from using information technology. Most of these solutions have been tested in pilot projects. However, virtually none yet have easily replicable business models. Among the most interesting are those that are underway in India, which has become a hotbed of IT applications to meet the needs of the poor in developing countries. These include projects by SEWA, Gyandoot/Dhar, Tarahaat, and the Indian National Dairy Development Board.

Conclusion

The Digital Divide is presently at the center of international development concerns. Following the Okinawa Summit in August 2000, the Group of Eight nations set up a Digital Opportunities Taskforce to work on ways on eliminating the divide. The United Nations places access to information technology as the third most important issue facing women globally, after poverty and violence against women.

Given the high profile of this issue, the time is ripe to act to ensure that women in developing countries can enter the information age. Although women in developing countries have had little contact yet with the new technologies, it is clear that they have substantial possibility to improve the lives of women and their families. The opportunities offered by information technology have to be seized deliberately because the cost of not doing so is very high. The technology is not a panacea for women's problems in developing countries. IT can bring threats and challenges along with opportunities. It can even be a tool of sexual exploitation. However, overall IT offers many new possibilities that offer women in developing countries a lifeline for economic, social and political empowerment. Action and complementary activities are needed to exploit them but they will be worth the effort. IT can certainly contribute to finding solutions to women's basic needs and accessing resources. And it will keep women in the mainstream of those seeking solutions.

"We must recognize that this information technology is here to stay . . . What we have to decide is we either play the game and turn it to our advantage or lose out completely."

Fatma Alloo, founder, Tanzania Media Women's Association¹

¹Society for International Development and UNESCO, *Women in the Digital Age - Using Communication technology for Empowerment: A Practical Hand book*, p. 14. Rome, 1998.